Maths for ML II

Nipun Batra
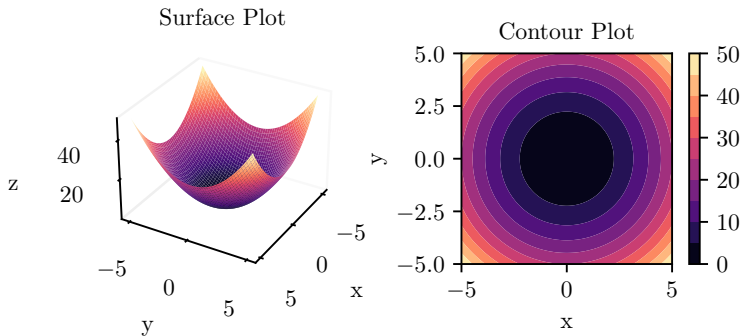
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IIT Gandhinagar

Contour Plot

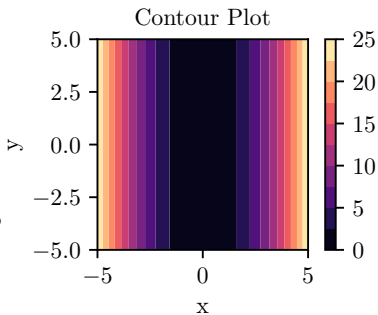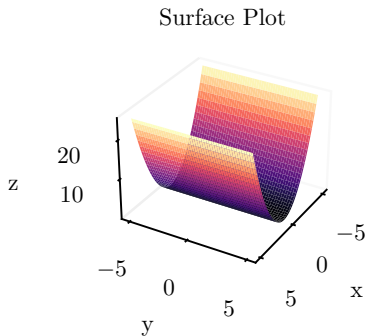$$z = f(x, y) = x^2 + y^2$$

Notebook: contour.html

Then plot $f(x, y) = K$ for varying K.
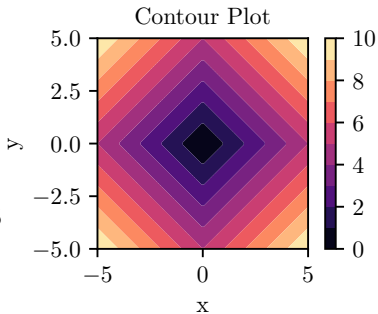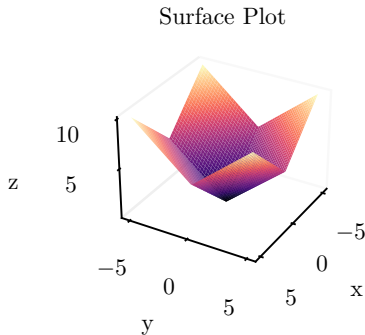
Contour Plot

$$z = f(x, y) = x^2$$

Notebook: contour.html
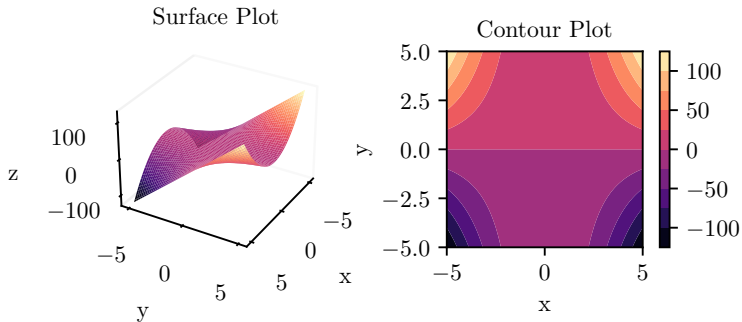
Contour Plot

$$z = f(x, y) = |x| + |y|$$

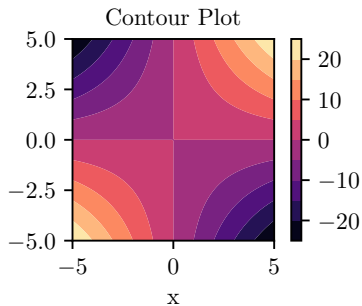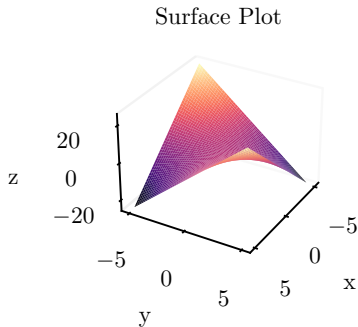Notebook: contour.html

Contour Plot

$$z = f(x, y) = (x^2) * y$$

Notebook: contour.html

Contour Plot

$z = f(x, y) = xy$
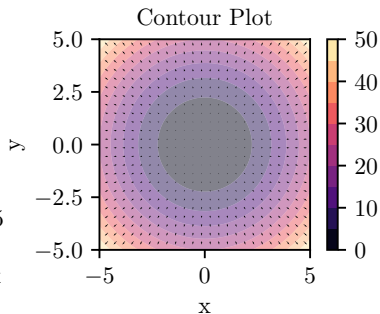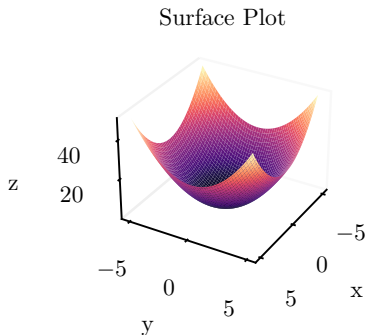

Notebook: contour.html

Contours plots and gradients

Gradient denotes the steepest change.

All points on the contour have the same $f(x, y)$

Contour Plot And Gradients

$$z = f(x, y) = x^2 + y^2$$

Surface Plot

Contour Plot

Contour Plots and Gradients

Gradient denotes the direction of steepest descent.
All points on the contour have the same f(x,y).
Gradient denotes the direction in which there is a maximum
increase in f(x,y)